



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PROBLEMS FOR SOLUTION.

ARITHMETIC.

98. Proposed by J. SCHEFFER, A. M., Hagerstown, Md.

A poor man borrowed \$20.00 which he repaid in eleven monthly installments of \$2.00 each; what was the annual rate of interest (reckoned as simple interest)?

99. If 300 cats catch 300 rats in 300 minutes, how many rats will 100 cats catch in 100 minutes? [From Milne's *Practical Arithmetic*.]

*^{**} Solutions of these problems should be sent to B. F. Finkel, not later than Sept. 10.

ALGEBRA.

88. Proposed by E. S. LOOMIS, Ph. D., Professor of Mathematics in Cleveland West High School, Berea, O.

(1). The Indemnity Savings and Loan Company made two loans of \$1000 each to "A", one of its borrowers, under the following terms: In the first loan "A" agrees to cancel the \$1000 by making 120 payments of \$13.50, the first payment to be considered as made on the first of the month in which the loan is made, and the 119 subsequent payments to be made on the first of each subsequent month; in the second loan "A" agrees to cancel the \$1000 by making 120 payments of \$13.50, the first payment being made on the first of the month following the loan, and the 119 subsequent payments being made on the first of the subsequent months. Does the Company sustain any loss in earnings by the second loan over the first loan, and if so how much, and when is (or are) this loss (or these losses) sustained, the rate of interest in each loan being considered as 10½% per annum?

(2). Deduce a formula for each case of proposition (1), by means of which one can find the balance of the loan uncancelled at the end of *any* month, if the loan is fully cancelled in 120 payments.

*^{**} Solutions of this problem should be sent to J. M. Colaw, not later than Sept. 10.

GEOMETRY.

99. Proposed by WILLIAM HOOVER, A. M., Ph. D., Professor of Mathematics and Astronomy; Ohio State University, Athens, Ohio.

Find the locus of the vertices of all right cones which have the same given ellipse as a base.

100. Proposed by CHARLES C. CROSS, Liberytown, Md.

O, O_1, O_2, O_3 are the centers of the inscribed and three escribed circles of a triangle ABC . Prove $AO \cdot AO_1 \cdot AO_2 \cdot AO_3 = AB^2 \cdot AC^2$.

101. Proposed by E. W. MORRELL, A. M., Professor of Mathematics, Montpelier Seminary, Montpelier, Vt.

AB is the diameter of a circle and Q_0 any point on the circumference; Q_1, Q_2, Q_3, \dots are the points of bisection of the arcs AQ_0, AQ_1, AQ_2, \dots . Prove that $BQ_1, BQ_2, BQ_3, \dots, BQ_n = OA^n \cdot (AQ_0/AQ_n)$.

*^{**} Solutions of these problems should be sent to B. F. Finkel, not later than Sept. 10.